

## RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.

Application Serial Number: 10/671, 317  
Source: 1 FWO  
Date Processed by STIC: 11/12/04

***ENTERED***



IFWO

## RAW SEQUENCE LISTING

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:48

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

3 <110> APPLICANT: Oppermann, Herman  
 4 Kuberasampath, Thangavel  
 5 Rueger, David  
 6 Ozkaynak, Engin  
 8 <120> TITLE OF INVENTION: Osteogenic Devices  
 10 <130> FILE REFERENCE: STK-010C3  
 12 <140> CURRENT APPLICATION NUMBER: US 10/671,317  
 13 <141> CURRENT FILING DATE: 2003-09-25  
 15 <150> PRIOR APPLICATION NUMBER: US 09/956,582  
 16 <151> PRIOR FILING DATE: 2001-09-19  
 18 <150> PRIOR APPLICATION NUMBER: US 09/074,299  
 19 <151> PRIOR FILING DATE: 1998-05-07  
 21 <150> PRIOR APPLICATION NUMBER: US 08/417,071  
 22 <151> PRIOR FILING DATE: 1995-04-04  
 24 <150> PRIOR APPLICATION NUMBER: US 08/145,812  
 25 <151> PRIOR FILING DATE: 1993-11-01  
 27 <150> PRIOR APPLICATION NUMBER: US 07/995,345  
 28 <151> PRIOR FILING DATE: 1989-12-22  
 30 <150> PRIOR APPLICATION NUMBER: US 07/315,342  
 31 <151> PRIOR FILING DATE: 1989-02-23  
 33 <150> PRIOR APPLICATION NUMBER: US 07/232,630  
 34 <151> PRIOR FILING DATE: 1988-08-15  
 36 <150> PRIOR APPLICATION NUMBER: US 07/179,406  
 37 <151> PRIOR FILING DATE: 1988-04-08  
 39 <160> NUMBER OF SEQ ID NOS: 72  
 41 <170> SOFTWARE: PatentIn version 3.3  
 43 <210> SEQ ID NO: 1  
 44 <211> LENGTH: 96  
 45 <212> TYPE: PRT  
 46 <213> ORGANISM: Artificial Sequence  
 48 <220> FEATURE:  
 49 <223> OTHER INFORMATION: Biosynthetic Protein COP5  
 51 <400> SEQUENCE: 1  
 53 Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala  
 54 1 5 10 15  
 57 Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro  
 58 20 25 30  
 61 Leu Ala Asp His Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu  
 62 35 40 45  
 65 Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr  
 66 50 55 60  
 69 Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val  
 70 65 70 75 80

P.6

## RAW SEQUENCE LISTING

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:48

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

```

73 Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
74           85           90           95
77 <210> SEQ ID NO: 2
78 <211> LENGTH: 96
79 <212> TYPE: PRT
80 <213> ORGANISM: Artificial Sequence
82 <220> FEATURE:
83 <223> OTHER INFORMATION: Biosynthetic protein COP7
85 <400> SEQUENCE: 2
87 Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala
88 1           5           10           15
91 Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro
92           20           25           30
95 Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
96           35           40           45
99 Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr
100          50           55           60
103 Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val
104 65           70           75           80
107 Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
108           85           90           95
111 <210> SEQ ID NO: 3
112 <211> LENGTH: 97
113 <212> TYPE: PRT
114 <213> ORGANISM: Artificial Sequence
116 <220> FEATURE:
117 <223> OTHER INFORMATION: endochondral bone formation inducing protein
120 <220> FEATURE:
121 <221> NAME/KEY: misc_feature
122 <222> LOCATION: (2)..(2)
123 <223> OTHER INFORMATION: wherein Xaa at position 2 can be any amino acid
125 <220> FEATURE:
126 <221> NAME/KEY: misc_feature
127 <222> LOCATION: (4)..(4)
128 <223> OTHER INFORMATION: wherein Xaa at position 4 can be any amino acid
130 <220> FEATURE:
131 <221> NAME/KEY: misc_feature
132 <222> LOCATION: (6)..(6)
133 <223> OTHER INFORMATION: wherein Xaa at position 6 can be any amino acid
135 <220> FEATURE:
136 <221> NAME/KEY: misc_feature
137 <222> LOCATION: (8)..(8)
138 <223> OTHER INFORMATION: wherein Xaa at postion 8 can be any amino acid
140 <220> FEATURE:
141 <221> NAME/KEY: misc_feature
142 <222> LOCATION: (11)..(11)
143 <223> OTHER INFORMATION: wherein Xaa at position 11 can be any amino acid
145 <220> FEATURE:
146 <221> NAME/KEY: misc_feature

```

## RAW SEQUENCE LISTING

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:48

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

147 <222> LOCATION: (12)..(12)  
148 <223> OTHER INFORMATION: wherein Xaa at position 12 can be any amino acid  
150 <220> FEATURE:  
151 <221> NAME/KEY: misc\_feature  
152 <222> LOCATION: (14)..(14)  
153 <223> OTHER INFORMATION: wherein Xaa at position 14 can be any amino acid  
155 <220> FEATURE:  
156 <221> NAME/KEY: misc\_feature  
157 <222> LOCATION: (15)..(15)  
158 <223> OTHER INFORMATION: wherein Xaa at position 15 can be any amino acid  
160 <220> FEATURE:  
161 <221> NAME/KEY: misc\_feature  
162 <222> LOCATION: (16)..(16)  
163 <223> OTHER INFORMATION: wherein Xaa at position 16 can be any amino acid  
165 <220> FEATURE:  
166 <221> NAME/KEY: misc\_feature  
167 <222> LOCATION: (18)..(18)  
168 <223> OTHER INFORMATION: wherein Xaa at position 18 can be any amino acid  
170 <220> FEATURE:  
171 <221> NAME/KEY: misc\_feature  
172 <222> LOCATION: (20)..(20)  
173 <223> OTHER INFORMATION: wherein Xaa at position 20 can be any amino acid  
175 <220> FEATURE:  
176 <221> NAME/KEY: misc\_feature  
177 <222> LOCATION: (21)..(21)  
178 <223> OTHER INFORMATION: wherein Xaa at position 21 can be any amino acid  
180 <220> FEATURE:  
181 <221> NAME/KEY: misc\_feature  
182 <222> LOCATION: (23)..(23)  
183 <223> OTHER INFORMATION: wherein Xaa at position 23 can be any amino acid  
185 <220> FEATURE:  
186 <221> NAME/KEY: misc\_feature  
187 <222> LOCATION: (26)..(26)  
188 <223> OTHER INFORMATION: wherein Xaa at position 26 can be any amino acid  
190 <220> FEATURE:  
191 <221> NAME/KEY: misc\_feature  
192 <222> LOCATION: (28)..(28)  
193 <223> OTHER INFORMATION: wherein Xaa at position 28 can be any amino acid  
195 <220> FEATURE:  
196 <221> NAME/KEY: misc\_feature  
197 <222> LOCATION: (30)..(31)  
198 <223> OTHER INFORMATION: wherein Xaa at positions 30-31 can be any amino acid  
200 <220> FEATURE:  
201 <221> NAME/KEY: misc\_feature  
202 <222> LOCATION: (33)..(40)  
203 <223> OTHER INFORMATION: wherein Xaa at positions 33-40 can be any amino acid  
205 <220> FEATURE:  
206 <221> NAME/KEY: misc\_feature  
207 <222> LOCATION: (44)..(45)

## RAW SEQUENCE LISTING

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:48

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

208 <223> OTHER INFORMATION: wherein Xaa at position 44-45 can be any amino acid  
210 <220> FEATURE:  
211 <221> NAME/KEY: misc\_feature  
212 <222> LOCATION: (47)..(48)  
213 <223> OTHER INFORMATION: wherein Xaa at position 47-48 can be any amino acid  
215 <220> FEATURE:  
216 <221> NAME/KEY: misc\_feature  
217 <222> LOCATION: (50)..(52)  
218 <223> OTHER INFORMATION: wherein Xaa at position 50-52 can be any amino acid  
220 <220> FEATURE:  
221 <221> NAME/KEY: misc\_feature  
222 <222> LOCATION: (54)..(57)  
223 <223> OTHER INFORMATION: wherein Xaa at position 54-57 can be any amino acid  
225 <220> FEATURE:  
226 <221> NAME/KEY: misc\_feature  
227 <222> LOCATION: (59)..(60)  
228 <223> OTHER INFORMATION: wherein Xaa at positions 59-60 can be any amino acid  
230 <220> FEATURE:  
231 <221> NAME/KEY: misc\_feature  
232 <222> LOCATION: (63)..(63)  
233 <223> OTHER INFORMATION: wherein Xaa at position 63 can be any amino acid  
235 <220> FEATURE:  
236 <221> NAME/KEY: misc\_feature  
237 <222> LOCATION: (65)..(72)  
238 <223> OTHER INFORMATION: wherein Xaa at position 65-72 can be any amino acid  
240 <220> FEATURE:  
241 <221> NAME/KEY: misc\_feature  
242 <222> LOCATION: (74)..(74)  
243 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid  
245 <220> FEATURE:  
246 <221> NAME/KEY: misc\_feature  
247 <222> LOCATION: (75)..(80)  
248 <223> OTHER INFORMATION: wherein Xaa at position 75-80 can be any amino acid  
250 <220> FEATURE:  
251 <221> NAME/KEY: misc\_feature  
252 <222> LOCATION: (82)..(82)  
253 <223> OTHER INFORMATION: wherein Xaa at position 82 can be any amino acid  
255 <220> FEATURE:  
256 <221> NAME/KEY: misc\_feature  
257 <222> LOCATION: (84)..(85)  
258 <223> OTHER INFORMATION: wherein Xaa at positions 84-85 can be any amino acid  
260 <220> FEATURE:  
261 <221> NAME/KEY: misc\_feature  
262 <222> LOCATION: (87)..(88)  
263 <223> OTHER INFORMATION: wherein Xaa at positions 87-88 can be any amino acid  
265 <220> FEATURE:  
266 <221> NAME/KEY: misc\_feature  
267 <222> LOCATION: (90)..(90)  
268 <223> OTHER INFORMATION: wherein Xaa at position 90 can be any amino acid

## RAW SEQUENCE LISTING

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:48

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

270 <220> FEATURE:  
 271 <221> NAME/KEY: misc\_feature  
 272 <222> LOCATION: (92)..(93)  
 273 <223> OTHER INFORMATION: wherein Xaa at positions 92-93 can be any amino acid  
 275 <220> FEATURE:  
 276 <221> NAME/KEY: misc\_feature  
 277 <222> LOCATION: (95)..(95)  
 278 <223> OTHER INFORMATION: wherein Xaa at position 95 can be any amino acid  
 280 <220> FEATURE:  
 281 <221> NAME/KEY: misc\_feature  
 282 <222> LOCATION: (97)..(97)  
 283 <223> OTHER INFORMATION: wherein Xaa at position 97 can be any amino acid  
 285 <400> SEQUENCE: 3  
 W--> 287 Leu Xaa Val Xaa Phe Xaa Asp Xaa Gly Trp Xaa Xaa Trp Xaa Xaa Xaa  
 288 1 5 10 15  
 291 Pro Xaa Gly Xaa Xaa Ala Xaa Tyr Cys Xaa Gly Xaa Cys Xaa Xaa Pro  
 292 20 25 30  
 295 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn His Ala Xaa Xaa Gln Xaa Xaa  
 296 35 40 45  
 299 Val Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Pro Xaa Xaa Cys Cys Xaa Pro  
 300 50 55 60  
 303 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa  
 304 65 70 75 80  
 307 Val Xaa Leu Xaa Xaa Tyr Xaa Xaa Met Xaa Val Xaa Xaa Cys Xaa Cys  
 308 85 90 95  
 311 Xaa  
 315 <210> SEQ ID NO: 4  
 316 <211> LENGTH: 102  
 317 <212> TYPE: PRT  
 318 <213> ORGANISM: Artificial Sequence  
 320 <220> FEATURE:  
 321 <223> OTHER INFORMATION: endochondral bone formation inducing protein  
 324 <220> FEATURE:  
 325 <221> NAME/KEY: misc\_feature  
 326 <222> LOCATION: (2)..(5)  
 327 <223> OTHER INFORMATION: wherein Xaa at positions 2-5 can be any amino acid  
 329 <220> FEATURE:  
 330 <221> NAME/KEY: misc\_feature  
 331 <222> LOCATION: (7)..(7)  
 332 <223> OTHER INFORMATION: wherein Xaa at position 7 can be any amino acid  
 334 <220> FEATURE:  
 335 <221> NAME/KEY: misc\_feature  
 336 <222> LOCATION: (9)..(9)  
 337 <223> OTHER INFORMATION: wherein Xaa at position 9 can be any amino acid  
 339 <220> FEATURE:  
 340 <221> NAME/KEY: misc\_feature  
 341 <222> LOCATION: (11)..(11)  
 342 <223> OTHER INFORMATION: wherein Xaa at position 11 can be any amino acid  
 344 <220> FEATURE:

RAW SEQUENCE LISTING ERROR SUMMARY  
 PATENT APPLICATION: US/10/671,317

DATE: 11/12/2004  
 TIME: 16:50:49

Input Set : A:\STK-010C3.ST25.txt  
 Output Set: N:\CRF4\11122004\J671317.raw

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; Xaa Pos. ~~2,4,6,8,11,12,14,15,16,18,20,21,23,26,28,30,31,33,34,35,36~~  
 Seq#:3; Xaa Pos. ~~37,38,39,40,44,45,47,48,50,51,52,54,55,56,57,59,60,63,65~~  
 Seq#:3; Xaa Pos. ~~66,67,68,69,70,71,72,74,75,76,77,78,79,80,82,84,85,87,88~~  
 Seq#:3; Xaa Pos. ~~90,92,93,95,97~~  
 Seq#:4; Xaa Pos. ~~2,3,4,5,7,9,11,13,16,17,19,20,21,23,25,26,28,31,33,35,36~~  
 Seq#:4; Xaa Pos. ~~38,39,40,41,42,43,44,45,49,50,52,53,55,56,57,59,60,61,62~~  
 Seq#:4; Xaa Pos. ~~64,65,68,70,71,72,73,74,75,76,77,79,80,81,82,83,84,85,87~~  
 Seq#:4; Xaa Pos. ~~89,90,92,93,95,97,98,100,102~~  
 Seq#:5; Xaa Pos. ~~2,4,6,8,11,12,14,15,16,18,20,21,23,26,28,30,31,33,34,35,36~~  
 Seq#:5; Xaa Pos. ~~37,38,39,40,44,45,47,48,50,51,52,54,55,56,57,59,60,63,66~~  
 Seq#:5; Xaa Pos. ~~67,68,69,70,71,72,73,75,76,77,78,79,80,81,83,85,86,87,88~~  
 Seq#:5; Xaa Pos. ~~89,91,92,93,95~~  
 Seq#:6; Xaa Pos. ~~2,3,4,5,7,10,12,15,16,18,19,20,22,24,25,27,30,32,34,35,37~~  
 Seq#:6; Xaa Pos. ~~38,39,40,41,42,43,44,48,49,51,52,54,55,56,58,59,60,61,63~~  
 Seq#:6; Xaa Pos. ~~64,67,70,71,72,73,74,75,76,77,79,80,81,82,83,84,85,87,89~~  
 Seq#:6; Xaa Pos. ~~90,91,92,93,95,96,97,98,100~~  
 Seq#:30; Xaa Pos. 15  
 Seq#:31; Xaa Pos. 4,10  
 Seq#:32; Xaa Pos. 15,16  
 Seq#:33; Xaa Pos. 2  
 Seq#:35; Xaa Pos. 13,16  
 Seq#:36; Xaa Pos. 19  
 Seq#:37; Xaa Pos. 12,14,17,18  
 Seq#:38; Xaa Pos. 2,8,10,12,13,19,21,22  
 Seq#:52; Xaa Pos. 93

## VERIFICATION SUMMARY

DATE: 11/12/2004

PATENT APPLICATION: US/10/671,317

TIME: 16:50:49

Input Set : A:\STK-010C3.ST25.txt

Output Set: N:\CRF4\11122004\J671317.raw

L:287 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0  
M:341 Repeated in SeqNo=3  
L:481 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0  
M:341 Repeated in SeqNo=4  
L:875 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0  
M:341 Repeated in SeqNo=5  
L:1381 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0  
M:341 Repeated in SeqNo=6  
L:1995 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0  
L:2020 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:0  
L:2040 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0  
L:2064 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0  
L:2107 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0  
L:2135 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:16  
L:2165 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0  
M:341 Repeated in SeqNo=37  
L:2219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0  
M:341 Repeated in SeqNo=38  
L:2846 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:80